Remarks:

Reconsideration and allowance are requested.

Formal drawings, including the required amendment, are submitted with this response. Withdrawal of the drawing objections is requested.

Claims 26, 28, 29, 35, 39, 43, 45, and 46 stand rejected under 35 U.S.C. 102(e) as allegedly being anticipated by Tagami et al. (U.S. Pat. No. 5,812,070). This rejection is traversed.

Tagami teaches a shared vehicle rental system that registers the users in a plurality of groups depending on a usage time zone (Abstract). In Tagami, usage and operating efficiency may be increased by allocating vehicles that are sufficiently charged, and need not be fully charged (Tagami, col. 5, line 63 through col. 6, line 16). "Consequently, the user can immediately use a motor vehicle without any waiting time" (Tagami, col. 6, lines 15-16).

The present application is directed towards a vehicle sharing system and method with vehicle parameter tracking, such as a system for tracking battery charge to effectuate efficient charging of a fleet of vehicles. Implementations of the claimed subject matter include a fleet of vehicles, a plurality of sensors installed on the vehicles, a plurality of vehicle subsystems installed on the vehicles, and a central station (see generally specification; claim 26).

Each of the independent claims 26, 35, and 43 includes the feature that "the central station…[is] configured to <u>allocate vehicles</u> in the fleet in response to the information regarding the state of charge of the at least one battery <u>to effectuate an efficient battery charging operation in the fleet</u>" (emphasis added; see claim 26). In order to effectuate an efficient battery charging operation, characteristics of a charge cycle,

such as the charge cycle shown in graph 210 (FIG. 11), can be used to determine optimal allocation of vehicles (see specification page 13, line 5 through page 14, line 21). A vehicle with the highest state of charge ("SOC") within a group of vehicles may be selected and allocated in response to a user request (see specification page 13, lines 5-10). Because vehicles with the highest SOC tend to have a slow charging rate (e.g. vehicles corresponding to a SOC between points 214 and 216 in FIG. 11), vehicles with a slow charging rate are allocated before vehicles with a fast charging rate (e.g. vehicles corresponding to a SOC between points 212 and 214 in FIG. 11). Thus, the fleet will charge efficiently because the vehicles left charging are those vehicles with a fast charging rate rather than the vehicles with a slow charging rate. The allocation of vehicles also may be modified to take into consideration other factors, such as by reserving vehicles for users expected to take longer trips (see specification page 13, lines 11-18), or statistical vehicle use (see specification page 13, lines 19-24).

Tagami fails to either teach or suggest allocating vehicles to effectuate an efficient battery charging operation in the fleet of vehicles. In fact, Tagami teaches away from this feature. As discussed earlier, Tagami does teach allocating vehicles to increase operating and usage efficiency. However, increasing operating and usage efficiency teaches away from efficiently charging the fleet. For example, Tagami teaches allocating a vehicle with a low remaining amount of charge if the past usage history of the user correlates to relatively short distances and time periods (Tagami, col. 6, lines 2-11). By allocating vehicles with a low remaining amount of charge, Tagami teaches away from the claimed subject matter because

Tagami teaches allocation of vehicles that have a fast charging rate before vehicles that have a slow charging rate. Thus, Tagami teaches away from the present application by teaching the allocation of vehicles in a manner that negatively impacts the effective charging of the fleet.

Additionally, independent claim 26 defines a system including a vehicle subsystem that can transmit "information reflecting the state of charge" such that the state of charge may be tracked and/or monitored by a central station at any given time (e.g. periodic and non-periodic intervals, specification, page 20, lines 18-19) via wireless communication. By contrast, the SOC information of Tagami is transmitted in very limited circumstances. For example, in Tagami the vehicle information is transmitted when the vehicle is processed during rental return (see Tagami, col. 6 line 49 through col. 7, line 18). Thus, Tagami does not disclose, teach, or suggest a system where the SOC may be tracked and/or monitored by a central station at any given time via wireless communication as claimed.

Additionally, dependent claims 28, 29, 45, and 46 are directed toward a vehicle sharing system and method with vehicle parameter tracking, such as battery tracking, where a vehicle may be reserved or allocated <u>based upon a user-requested travel distance being above or below a predetermined value</u>. Tagami does not teach this feature. Rather than teaching allocation of vehicles <u>based upon user-requested travel distance being above or below a predetermined value</u>, Tagami teaches allocation of vehicles based upon "past usage" of the user (Tagami, col. 5, line 66; col. 6, line 7).

For all of these reasons, the Applicant suggests that claims 26, 28, 29, 35, 43, 45, and 46 are allowable.

Additionally, claim 39 is dependent upon independent claim 35, thus this claim should also be allowable.

Dependent claims 27, 36 and 44 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Tagami in view of Kondo et al. (U.S. Pat. No. 6,181,991). Dependent claims 27, 36 and 44 are directed toward a vehicle sharing system and method with vehicle parameter tracking where vehicles are allocated to effectuate an efficient battery charging operation and a vehicle having a "highest state of charge" may be allocated.

Kondo and Tagami fail to teach or suggest either alone or in combination allocating vehicles to effectuate an efficient battery charging operation in the fleet of vehicles. In fact both Kondo and Tagami teach away from allocating vehicles to effectuate an efficient battery charging operation. Kondo teaches away from the claimed subject matter by teaching the allocation of vehicles in a manner that negatively impacts efficient battery charging. Kondo discloses that the system controller 28 picks up electric vehicles 12 whose batteries have remaining capacities equal to or greater than the calculated minimum capacity, as vehicles for lending (col. 5, lines 43-46). If there are vehicle candidates for lending whose batteries have remaining capacities equal to or greater than the calculated minimum capacity in step S5e, then the system control unit 40 selects an electric vehicle 12 whose battery has a minimum remaining battery capacity among the vehicle candidates for lending in step S5f (col.5, 61-67). Thus, Kondo teaches away from the present application because vehicles that may have a fast charging rate (e.g. vehicles in the linear region of the SOC graph 210, present application, FIG. 11) are taught to be allocated before vehicles that have a slow charging rate (e.g.

vehicles in the nonlinear region of the SOC graph 210). Also, as discussed earlier, Tagami teaches away from allocating vehicles to effectuate an efficient battery charging operation.

For these reasons, the Applicant suggests that dependent claims 27, 36, and 44 are allowable.

Dependent claims 40 and 42 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Tagami in view of Henze et al. (U.S. Pat. No. 5,803,215). Dependent claims 40 and 42 are directed toward a vehicle sharing system and method with vehicle parameter tracking where a charging order for vehicles may be based on the SOC of each vehicle. The vehicle sharing system allocates vehicles in order to effectuate an efficient battery charging operation in a fleet of vehicles (claim 35). In accordance with claim 42, a charging facility defines a charging rate for each vehicle, and a plot of the charging rate may include a "generally linear region" and a "generally nonlinear region."

Henze is directed toward a method and apparatus for charging batteries where a vehicle connecting station includes a station power converter (Abstract). Although the method and apparatus of Henze does define a maximum charging rate (Henze, col. 5, 62-65), Henze does not disclose or teach defining the charging rate as disclosed in the present application. Henze defines the charging rate as the maximum charging rate (Henze, col. 5, 8-11; Henze, col. 4, lines 1-30). By contrast, the charging rate of the present application is defined as the charging rate over a period of time for vehicles based on the charge cycle of a vehicle (see present application, page 14, lines 3-21; present application, FIG. 11).

In addition, Henze does not disclose or teach a plot of the charge cycle that may include a "generally linear region" and a

"generally nonlinear region" (claim 42). In Henze, there is no mention of a plot including a generally linear region and a generally nonlinear region.

Also, Tagami and Henze fail to teach or suggest either alone or in combination allocating vehicles to effectuate an efficient battery charging operation in the fleet of vehicles. In fact, as discussed earlier, Tagami teaches away from allocating vehicles to effectuate an efficient battery charging operation. In addition, Henze fails to teach allocating vehicles to effectuate an efficient battery charging operation.

For all of these reasons, the Applicant suggests that dependent claims 40 and 42 are also allowable on these grounds.

Claim 31 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Tagami in view of Tabata et al. (U.S. Pat. No. 5,908,453). This rejection is traversed. Dependent claim 31 is directed toward a vehicle sharing system and method with vehicle parameter tracking where <u>a signal may be sent from a central station to vehicle in response to the SOC</u> of the vehicle sensed below a predefined minimum. The vehicle sharing system allocates vehicles in order to effectuate an efficient battery charging operation in a fleet of vehicles (claim 35).

Tabata teaches using sensors to indicate a warning to a user of a vehicle (Tabata col. 2, lines 25-32). However, Tabata does not teach or suggest programming a vehicle subsystem to display a message in response to <u>a signal transmitted from a central station to the vehicle subsystem</u> (see generally claim 31). The disclosure of the present application differs from Tabata in that signals may be sent by a remote system, which may cause a warning message to be generated. By contrast, Tabata's disclosure of a warning system is enclosed in a vehicle. Tabata does not disclose wireless communications related to vehicle

warning systems. Also, Tabata does not include a central station, nor would the combination of Tabata and Tagami, be obvious such that the central station of Tagami may transmit signals that may cause a message indicating a low SOC.

Also, Tagami and Tabata fail to teach or suggest either alone or in combination allocating vehicles to effectuate an efficient battery charging operation in the fleet of vehicles. In fact, as discussed earlier, Tagami teaches away from allocating vehicles to effectuate an efficient battery charging operation. In addition, Tabata fails to teach allocating vehicles to effectuate an efficient battery charging operation.

For all of these reasons, the Applicant suggests that dependent claim 31 should be allowable on these grounds.

In view of the above remarks, therefore, all of the claims should be in condition for allowance. A formal notice to that effect is respectfully requested.

Enclosed please find a check for $950.00 for a three month extension fee. Please apply any other necessary charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 12/4/03

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Attachments: Replacement Sheets (12 pages)
Annotated Sheet Showing Changes (1 sheet)